REMARKS

The present application involves an analog phase change memory, which is a memory which includes a chalcogenide that is an analog phase change memory. An analog phase change memory is explained in the background of the present application. Analog information is normally stored by digitizing that information and then storing the information in a digital memory. Here, what is proposed is to store the analog information in an analog form in an analog memory.

None of the cited references teach an analog phase change memory. The cited Reinberg patent stores digital information. For example, at column 6, lines 17-18, there is a discussion of two states. The "states" clearly evince an intent to store digital information. Likewise, there is an indication that those states are detected at column 6, lines 26-27. A selected state is programmed as indicated in column 6, lines 45-47.

There is a paragraph that bridges columns 1 and 2 of Reinberg which has been carried over in a number of the cited references. What is discussed here is the fact that the actual performance of the phase change memory may be represented in an analog fashion. But the way that that analog information is stored is digital. In other words, the analog information is digitized for storage. For example, it is indicated that the material may be switched between detectable states. See the last line bridging columns 1 and 2. The information is stored in binary fashion. As indicated in column 2, line 5, clearly, this is a pure digital storage. In addition, as indicated at column 2, lines 6 *et seq.,* the information from the memory can be switched in incremental steps reflecting changes of local order to provide a gray scale. But, again, a gray scale representation is a digital representation of analog data, which digital representation is stored necessarily in a digital, rather than an analog, memory.

For example, as explained in the attached material, which was obtained from New York University's website, generally analog information consists of continuously varying information and digital information is composed of individual dots or pixels, in the case of video information. Thus, analog information is converted to digital information by sampling and measuring the digital information. Scanners, as explained on page 3 under the heading "digital image capture," record tonal values and digital images in one of three ways, one of which is a gray scale representation. It is further explained that in an eight bit gray scale capture, each sample is expressed using eight bits

of information and the tonal values in the original are recorded in a much larger palette that includes, not only black and white, but intermediate shades of gray.

Likewise, in the cited Reinberg patent, the discussion of shades of gray is a reference to gray scale and to digitized analog information. The digitized information must be stored in digital format since that was the entire reason for converting to gray scale. In other words, Reinberg clearly teaches a digital storage.

Since Reinberg fails to teach an analog memory, it cannot render the claimed invention obvious.

The cited patent to Ovshinsky includes the same information. See column 1, lines 47-65. However, Ovshinsky is even more explicit that the information is encoded in binary form. Column 20, line 67.

Moreover, Ovshinsky does not even relate to a phase change memory, but, instead, talks about an MSM memory.

Therefore, Ovshinsky cannot render the claimed invention obvious.

The cited reference to Gonzalez has nothing that indicates that anything but states are recorded. Column 1, lines 30-45, include the same information discussed previously with respect to Reinberg, further suggesting that Gonzalez, like all of the other references, use digital phase change memories.

Gilton talks about multiple states in the title. He also talks about logic states in column 4, lines 33 and 34. There is nothing to suggest that Gilton teaches an analog memory.

Lung also talks about using states at column 8, lines 1-14. The same gray scale discussion from Ovshinsky is contained in column 1, lines 43-60, further confirming that a digital memory is being described.

Zahorik has essentially the same paragraph in column 1, again, confirming that nothing but digital information is being stored, as is conventional.

Klersy, again, has the same language in column 1.

Czubatyj, in column 13, talks about setting in one resistance value (column 14, lines 11-16) and in column 14, lines 23-34, talks about a pseudo-analog memory, which amounts to nothing more than the same gray scale idea of a plurality of samples which is indicative of digitization for digital storage. In fact, in column 14 at line 30 it is indicated that the bits are binary. This clearly demonstrates that the reference is a digital memory, not an analog memory.

Since none of the references have anything to do with an analog phase change memory, reconsideration of the rejection is respectfully requested.

Respectfully submitted,

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Timothy N. Trop, Reg. No. 28,994
TROP, PRUNER & HU, P.C.
8554 Katy Freeway, Ste. 100
Houston, TX 77024
713/468-8880 [Phone]
713/468-8883 [Fax]